UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,345	12/17/2001	Thomas Francis McNulty	RD-28430	1329

6147 7590 07/31/2003

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH CENTER
PATENT DOCKET RM. 4A59
PO BOX 8, BLDG. K-1 ROSS
NISKAYUNA, NY 12309

EXAMINER	
LEON, EDWIN A	
ART UNIT	**PAPER NUMBER**
2833	

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 09/683,345	**Applicant(s)** MCNULTY ET AL.
	Examiner Edwin A. León	**Art Unit** 2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) *43-49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 1-42 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The requirement is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Duggal et al. (U.S. Patent No. 6,515,314). With regard to Claim 1, Duggal et al. discloses a light-emitting device comprising a light-emitting member (10) that comprises a first electrode (50), a second electrode (30), and at least one organic electroluminescent EL material (40) disposed between the first (50) and second electrodes (30), the light-

emitting member (10) being disposed on a substrate (20) and emitting first electromagnetic EM radiation having a first spectrum when an electrical voltage is applied across the electrodes (50,30); and at least one organic photoluminescent PL material (42) disposed in a path of light emitted by the light-emitting member (10), the organic PL material (42) absorbing a portion of the first EM radiation and emitting second EM radiation having a second spectrum. See Figs. 1-7.

With regard to Claim 2, Duggal et al. discloses at least one inorganic PL material (Column 8, Lines 3-18) disposed adjacent to at least one of the organic EL material (40) and the organic PL material (42), the inorganic PL material (Column 8, Lines 3-18) absorbing a portion of the first radiation and emitting third radiation having a third spectrum. See Figs. 1-7.

With regard to Claim 3, Duggal et al. discloses light emitted from the light-emitting device having a correlated color temperature (Column 3, Lines 1-6) in a range from about 3000 K to about 6500 K. See Figs. 1-7.

With regard to Claim 4, Duggal et al. discloses a light-scattering material (Column 4, Lines 13-21) disposed in a path of light emitted from the light-emitting member (10). See Figs. 1-7.

With regard to Claim 5, Duggal et al. discloses the organic PL material (42) being dispersed in a layer of a polymeric material (Column 5, Lines 1-26), the layer being disposed on the light-emitting member (10). See Figs. 1-7.

With regard to Claim 6, Duggal et al. discloses the organic PL material (42) and the inorganic PL material (Column 8, Lines 3-18) being dispersed in separate layers of

polymeric materials (Column 5, Lines 1-26), the layers being disposed on the light-emitting member (10). See Figs. 1-7.

With regard to Claim 7, Duggal et al. discloses the scattering material (Column 4, Lines 13-21) being in a form of particles having a size in a range from about 10 nm to about 100 micrometers that are dispersed in a film of a polymeric material (Column 5, Lines 1-26). See Figs. 1-7.

With regard to Claim 8, Duggal et al. discloses the film containing dispersed particles of light-scattering material (Column 4, Lines 13-21) being disposed adjacent to the inorganic PL material (Column 8, Lines 3-18). See Figs. 1-7.

With regard to Claim 9, Duggal et al. discloses the first spectrum having wavelengths in a range from near ultraviolet ("UV") (Column 4, Lines 23-39) to red. See Figs. 1-7.

With regard to Claim 10, Duggal et al. discloses the wavelengths being in a range from about 300 nm to about 770 nm (Column 4, Lines 23-39). See Figs. 1-7.

With regard to Claim 11, Duggal et al. discloses the wavelengths are preferably in a range from about 300 nm to about 550 nm (Column 4, Lines 23-39). See Figs. 1-7.

With regard to Claim 12, Duggal et al. discloses the second spectrum having wavelengths in a range from about 500 to about 770 nm (Column 4, Lines 23-39). See Figs. 1-7.

With regard to Claim 13, Duggal et al. discloses the wavelengths being preferably in a range from about 550 nm to about 770 nm (Column 4, Lines 23-39). See Figs. 1-7.

With regard to Claim 14, Duggal et al. discloses the third spectrum having wavelengths in a range from about 500 nm to about 770 nm (Column 4, Lines 23-39). See Figs. 1-7.

With regard to Claim 15, Duggal et al. discloses the substrate (20) and the polymeric materials (Column 5, Lines 1-26) having refractive indices from about 1.4 to about 1.6. See Figs. 1-7, and Column 3, Lines 56-67.

With regard to Claim 16, Duggal et al. discloses the first electrode (50) comprising a material selected from the group consisting of K, Li, Na, Mg, La, Ce, Ca, Sr, Ba, Al, Ag, In, Sn, Zn, Zr, Sm, Eu, alloys thereof, and mixtures thereof. See Figs. 1-7 and Column 4, Lines 55-65.

With regard to Claim 17, Duggal et al. discloses the at least one organic EL material (40) is selected from the group consisting of poly(n-vinylcarbazole), poly(alkylfluorene), poly(paraphenylene), polysilanes, derivatives thereof, mixtures thereof, and copolymers thereof. See Figs. 1-7 and Column 5, Lines 1-26.

With regard to Claim 18, Duggal et al. discloses the at least one organic EL material (40) being selected from the group consisting of 1,3,5-tris{n-(4-diphenylaminophenyl)phenylamino} benzene, phenylanthracene, tetraarylethene, coumarin, rubrene, tetraphenylbutadiene, anthracene, perylene}, coronene, aluminum-(picolymethylketone)-bis{2,6-di(t-butyl) phenoxide}, scandium-(4-methoxy-picolymethylketone)-bis(acetylacetonate), aluminum-acetylacetonate, gallium-acetylacetonate, and indium-acetylacetonate. See Figs. 1-7 and Column 5, Lines 1-26.

With regard to Claim 19, Duggal et al. discloses the at least one organic EL material (40) is carried in a substantially transparent polymer. See Figs. 1-7 and Column 5, Lines 1-26.

With regard to Claim 20, Duggal et al. discloses the second electrode (30) comprising a materials elected from the group consisting of ITO, tin oxide, indium oxide, zinc oxide, indium zinc oxide, and mixtures thereof. See Figs. 1-7 and Column 4, Lines 40-54.

With regard to Claim 21, Duggal et al. discloses the organic PL material (42) being at least one material selected from the group consisting of perylenes, benzopyrenes, coumarin dyes, polymethine dyes, xanthene dyes, oxobenzanthracene dyes, perylenebis(dicarboximide), pyrans, thiopyrans, and azo dyes. See Figs. 1-7 and Column 7, Lines 39-51.

With regard to Claim 22, Duggal et al. discloses the inorganic PL material (Column 8, Lines 3-18) being at least one material selected from the group consisting of (Y.sub.1-xCe.sub.x).sub.3Al.sub.5O.sub.12; (Y.sub.1-x-yGd.sub.xCe.sub.-y).sub.3Al.sub.5O.sub.12; (Y.sub.1-xCe.sub.x).sub.3(Al.sub.1-yGa.sub.y) O.sub.12; (Y.sub.1-x-yGd.sub.xCe.sub.y)(Al.sub.5-zGa.sub.z)O.sub.12; (Gd.sub.1-xCe.sub.x)Sc.sub.2Al.sub.3O.sub.12; Ca.sub.8Mg(SiO.sub.4).sub.4-Cl.sub.2:Eu.sup.2+,Mn.sup.2+; GdBO.sub.3:Ce.sup.3+, Tb.sup.3+; CeMgAl.sub.11O.sub.19: Tb.sup.3+; Y.sub.2SiO.sub.5:Ce.sup.3+,Tb.sup.3+; BaMg.sub.2Al.sub.16O.sub.27:Eu.sup.2+,Mn.sup.2+; Y.sub.2O.sub.3:Bi.sup.3+-,Eu.sup.3+;Sr.sub.2P.sub.2O.sub.7:Eu.sup.2+,Mn.sup.2+;

SrMgP.sub.2O.sub.7:Eu.sup.2+,Mn.sup.2+; (Y,Gd)(V,B)O.sub.4:Eu.sup.3+; 3.5MgO.0.5MgF.sub.2.GeO.sub.2:Mn.sup.4+ (magnesium fluorogerminate); BaMg.sub.2Al.sub.16O.sub.27:Eu.sup.2+; Sr.sub.5(PO.sub.4).sub.10Cl.sub.2:-Eu.sup.2+; (Ca,Ba,Sr)(Al,Ga).sub.2S.sub.4:Eu.sup.2+; (Ba,Ca,Sr).sub.5(PO.sub.4).sub.10(Cl.sub.2, F).sub.2:Eu.sup.2+,Mn.sup.2+; Lu.sub.3Al.sub.5O.sub.12:Ce.sup.3+; Tb.sub.3Al.sub.5O.sub.12:Ce.sup.3+, and mixtures thereof; wherein 0.ltoreq.x.ltoreq.1,0.ltoreq.y.ltoreq.1, 0.ltoreq.z.ltoreq.5 and x+y.ltoreq.1. See Figs. 1-7 and Column 11, Lines 2-18.

With regard to Claim 23, Duggal et al. discloses the light-scattering material (Column 4, Lines 13-21) being selected from the group consisting of rutile (TiO.sub.2), hafnia (HfO.sub.2), zirconia(ZrO.sub.2), zircon (ZrO.sub.2.SiO.sub.2), gadolinium gallium garnet (Gd.sub.3Ga.sub.5O.sub.1- 2), barium sulfate, yttria (Y.sub.2O.sub.3), yttrium aluminum garnet ("YAG", Y.sub.3Al.sub.5O.sub.12), calcite (CaCO.sub.3), sapphire (Al.sub.2O.sub.3), diamond, magnesium oxide, germanium oxide, and mixtures thereof. See Figs. 1-7 and Column 4, Lines 13-21.

With regard to Claim 24, Duggal et al. discloses a light-emitting device comprising: (1) light-emitting member (10) that comprises a first electrode (50) and a second electrode (30) and at least one organic EL material (40) disposed between the first (50) and second electrodes (30), the light-emitting member (10) being disposed on a substrate (20) and emitting first EM radiation having a first spectrum when an electrical voltage is applied across the electrodes (50,30), the first spectrum having wavelengths in a range from about 300 nm to about 770 nm; (2) at least one layer of at

least one organic PL material (42) disposed adjacent to the light-emitting member (10), the organic PL material (42) absorbing a first portion of the first EM radiation and emitting second EM radiation having a second spectrum having wavelengths in a range from about 500 nm to about 770 nm; (3) at least one layer of at least one inorganic PL material (Column 8, Lines 3-18) disposed adjacent to at least one of the organic EL material (40) and the organic PL material (42), the inorganic PL material (Column 8, Lines 3-18) absorbing a second portion of the first EM radiation and emitting third EM radiation having a third spectrum having wavelengths in a range from about 500 nm to about 700 nm; and (4) a layer comprising at least one light-scattering material (Column 4, Lines 13-21) disposed in a path of light emitted from the light-emitting member (10); wherein light emitted from the light-emitting device has a correlated color temperature (Column 3, Lines 1-6) in a range from about 3000 K to about 6500 K. See Figs. 1-7.

With regard to Claim 25, Duggal et al. discloses each of the organic EL material (40), the at least one organic PL material (42), and the at least one inorganic PL material (Column 8, Lines 3-18) covers more than about 10 percent of a surface of the substrate (20) and exhibits continuity to a naked eye. See Figs. 1-7.

With regard to Claim 26, Duggal et al. discloses each of the organic EL material (40), the at least one organic PL material (42), and the at least one inorganic PL material (Column 8, Lines 3-18) covers substantially an entire surface of the substrate (20) and exhibits continuity to a naked eye. See Figs. 1-7.

With regard to Claim 27, Duggal et al. discloses a light-emitting device comprising: (1) a light-emitting member (10) that comprises a first electrode (50) and a

second electrode (30) and at least one organic EL material (40) disposed between the first (50) and second electrodes (30), the light-emitting member (10) being disposed on a substrate (20) and emitting first EM radiation having a first spectrum when an electrical voltage is applied across the electrodes (50,30); (2) at least one layer of at least one organic PL material (42) disposed adjacent to the light-emitting member (10), the organic PL material (42) absorbing a first portion of the first EM radiation and emitting second EM radiation having a second spectrum; (3) at least one layer containing an additional material selected from the group consisting of: (a) at least one inorganic PL material (Column 8, Lines 3-18) disposed adjacent to at least one of the organic EL material (40) and the organic PL material (42), the inorganic PL material (Column 8, Lines 3-18) absorbing a second portion of the first EM radiation and emitting third EM radiation having a third spectrum; and (b) at least one light-scattering material (Column 4, Lines 13-21) disposed in a path of light emitted from the light-emitting member (10); and (4) a substantially transparent encapsulant (60) layer disposed around an assembly of (1), (2) and (3). See Figs. 1-7.

With regard to Claim 28, Duggal et al. discloses the encapsulant (60) being selected from the group consisting of silicone, epoxy, and silicone-functionalized epoxy. See Figs. 1-7 and Column 8, Lines 1-27.

With regard to Claim 29, Duggal et al. discloses a light-emitting device comprising: (1) a light-emitting member (10) that comprises a first electrode (50) and a second electrode (30) and at least one organic EL material (40) disposed between the first (50) and second electrodes (30), the light-emitting member (10) being disposed on

a substrate (20) and emitting first EM radiation having a first spectrum when an electrical voltage is applied across the electrodes (50,30), the first spectrum having wavelengths in a range from about 300 nm to about 770 nm; (2) at least one layer of at least one organic PL material (42) disposed adjacent to the light-emitting member (10), the organic PL material (42) absorbing a first portion of the first EM radiation and emitting second EM radiation having a second spectrum having wavelengths in a range from about 500 nm to about 770 nm; (3) at least one layer of at least one inorganic PL material (Column 8, Lines 3-18) disposed adjacent to at least one of the organic EL material (40) and the organic PL material, the inorganic PL material (Column 8, Lines 3-18) absorbing a second portion of the first EM radiation and emitting third EM radiation having a third spectrum having wavelengths in a range from about 500 nm to about 770 nm; and (4) a layer containing at least one light-scattering material (Column 4, Lines 13-21) disposed in a path of light emitted from the light-emitting member (10); wherein light emitted from the light-emitting device has a correlated color temperature (Column 3, Lines 1-6) in a range from about 3000 K to about 6500 K; each of the organic EL material (40), the at least one organic PL material (42), and the at least one inorganic PL material (Column 8, Lines 3-18) covers more than about 10 percent of a surface of the substrate (20) and exhibits continuity to a naked eye; the first electrode (50) comprises a material selected from the group consisting of K, Li, Na, Mg, La, Ce, Ca, Sr, Ba, Al, Ag, In, Sn, Zn, Zr, Sm, Eu, alloys thereof, and mixtures thereof; the at least one organic EL material (40) is selected from the group consisting of poly(n-vinylcarbazole), poly(alkylfluorene), poly(paraphenylene), polysilanes, derivatives

thereof, mixtures thereof, copolymers thereof, 1,3,5-tris{n-(4-diphenylaminophenyl)phenylamino} benzene, phenylanthracene, tetraarylethene, coumarin, rubrene, tetraphenylbutadiene, anthracene, perylene, coronene, aluminum-(picolymethylketone)-bis{2,6-di(t-butyl)phenoxide}, scandium-(4-methoxy-picolymethylketone)-bis(acetylacetonate), aluminumacetylacetonate, gallium-acetylacetonate, and indium-acetylacetonate; the second electrode (30) comprises a material elected from the group consisting of ITO, tin oxide, indium oxide, zinc oxide, indium zinc oxide, and mixtures thereof; the organic PL material (42) is at least one material selected from the group consisting of perylenes, benzopyrenes, coumarin dyes, polymethine dyes, xanthene dyes, oxobenzanthracene dyes, perylenebis(dicarboximide), pyrans, thiopyrans, and azo dyes; the inorganic PL material (Column 8, Lines 3-18) is at least one material selected from the group consisting of (Y.sub.1-xCe.sub.x).sub.3Al.sub.5O.- sub.12; (Y.sub.1-x-yGd.sub.xCe.sub.y).sub.3Al.sub.5O.sub.12; (Y.sub.1-xCe.sub.x).sub.3(Al.sub.1-yGa.sub.y)O.sub.12; (Y.sub.1-x-yGd.sub.xCe.sub.y)(Al.sub.5-zGa.sub.z)O.sub.12; (Gd.sub.1-Ce.sub.x)Sc.sub.2Al.sub.3O.sub.12; Ca.sub.8Mg(SiO.sub.4).sub.4C-l.sub.2:Eu.sup.2+,Mn.sup.2+; GdBO.sub.3:Ce.sup.3+, Tb.sup.3+; CeMgAl.sub.11O.sub.19: Tb.sup.3+; Y.sub.2SiO.sub.5:Ce.sup.3+,Tb.sup.3+; BaMg.sub.2Al.sub.16O.sub.27:Eu.sup.2+,Mn.sup.2+; Y.sub.2O.sub.3:Bi.sup.3+-,Eu.sup.3+; Sr.sub.2P.sub.2 O.sub.7:Eu.sup.2+,Mn.sub.2+; SrMgP.sub.2O.sub.7:Eu.sup.2+,Mn.sup.2+; (Y,Gd)(V,B)O.sub.4:Eu.sup.3+; 3.5MgO.0.5MgF.sub.2.GeO.sub.2:Mn.sup.4+(magnesium fluorogerminate);

BaMg.sub.2Al.sub.16O.sub.27:Eu.sup.2+; Sr.sub.5(PO.sub.4).sub.10Cl.sub.2:-Eu.sup.2+; BaMg.sub.2Al.sub.16O.sub.27:Eu.sup.2+; Sr.sub.5(P.sub.4).sub.10-Cl.sub.2:Eu.sup.2+; (Ca,Ba,Sr)(Al,Ga).sub.2S.sub.4:Eu.sup.2+;(Ba,Ca,Sr).sub.5(PO.sub.4).sub.10(Cl,F).sub.2:Eu.sup.2+,Mn.sup.2+; Lu.sub.3Al.sub.5O.sub.12:Ce.sup.3+; Tb.sub.3Al.sub.5O.sub.12:Ce.sup.3+; and mixtures thereof; wherein 0.ltoreq.x.ltoreq.1,0.ltoreq.y.ltoreq., 0.ltoreq.z.ltoreq.5 and x+y.ltoreq.1; and the light-scattering material (Column 4, Lines 13-21) is selected from the group consisting of rutile (TiO.sub.2), hafnia (HfO.sub.2), zirconia(ZrO.sub.2), zircon (ZrO.sub.2.SiO.sub.2), gadolinium gallium garnet (Gd.sub.3Ga.sub.5O.sub.12), barium sulfate, yttria (Y.sub.2O.sub.3), yttrium aluminum garnet ("YAG", Y.sub.3Al.sub.5O.sub.12), calcite (CaCO.sub.3), sapphire (Al.sub.2O.sub.3), diamond, magnesium oxide, germanium oxide. See Figs. 1-7, Column 4, Lines 40-67, and Column 7, Lines 39-51.

With regard to Claim 30, Duggal et al. discloses a method of making a light-emitting device that is based on at least one organic EL material (40), the method comprising the steps of: (1) providing a substrate (20); (2) forming a light-emitting member (10) in a process comprising the steps of: (a) depositing a first electrically conducting material on one surface of the substrate (20) to form a first electrode (50); (b) depositing the at least one organic EL material (40) on the first electrode (50); and (c) depositing a second electrically conducting material on the organic EL material (40) to form a second electrode (30); and (3) disposing at least one organic PL material (42) adjacent to the light-emitting member (10). See Figs. 1-7.

With regard to Claim 31, Duggal et al. discloses the step of disposing at least one inorganic PL material (Column 8, Lines 3-18) adjacent to the organic PL material (42). See Figs. 1-7.

With regard to Claim 32, Duggal et al. discloses the step of disposing at least one light-scattering material (Column 4, Lines 13-21) in a path of light emitted from at least one of the light-emitting member (10) and the organic PL material (42). See Figs. 1-7.

With regard to Claim 33, Duggal et al. discloses the step of disposing at least one light-scattering material (Column 4, Lines 13-21) in a path of light emitted from at least one of the light-emitting member (10), the organic PL material (42), and the inorganic PL material (Column 8, Lines 3-18). See Figs. 1-7.

With regard to Claim 34, Duggal et al. discloses the steps of depositing the first and second electrically conducting materials being selected from the group consisting of physical vapor deposition, chemical vapor deposition, and sputtering. See Figs. 1-7 and Column 7, Lines 60-67.

With regard to Claim 35, Duggal et al. discloses the step of depositing the at least one organic EL material (40) being selected from the group consisting of physical vapor deposition, chemical vapor deposition, spin coating, dip coating, spraying, ink-jet printing, and casting. See Figs. 1-7 and Column 7, Lines 60-67.

With regard to Claim 36, Duggal et al. discloses the step of disposing at least one organic PL material (42) comprising depositing the organic PL material (42) by a method selected from the group consisting of physical vapor deposition, chemical vapor

deposition, spin coating, dip coating, spraying, ink-jet printing, and casting . See Figs. 1-7 and Column 7, Lines 60-67.

With regard to Claim 37, Duggal et al. discloses the step of disposing at least one organic PL material (42) comprising dispersing the organic PL material (42) in a substantially transparent polymeric material (Column 5, Lines 1-26) to form a mixture, casting the mixture into a film by a doctor blade method, curing the film, and disposing the film adjacent to the light-emitting member (10). See Figs. 1-7 and Column 7, Lines 60-67.

With regard to Claim 38, Duggal et al. discloses the step of disposing at least one inorganic PL material (Column 8, Lines 3-18) comprising dispersing the inorganic PL material (Column 8, Lines 3-18) in a substantially transparent polymeric material (Column 5, Lines 1-26) to form a mixture and depositing the mixture on the organic PL material (42) by a method selected from the group consisting of spin coating, dip coating, spraying, ink-jet printing, and casting. See Figs. 1-7 and Column 7, Lines 60-67.

With regard to Claim 39, Duggal et al. discloses the step of disposing at least one inorganic PL material (Column 8, Lines 3-18) comprising dispersing the inorganic PL material (Column 8, Lines 3-18) in a substantially transparent polymeric material (Column 5, Lines 1-26) to form a mixture and casting the mixture into a film using a doctor blade method, curing the film, and disposing the film adjacent to the organic PL material (42). See Figs. 1-7 and Column 7, Lines 60-67.

With regard to Claim 40, Duggal et al. discloses the step of disposing at least one light-scattering material (Column 4, Lines 13-21) comprising dispersing particles of the light-scattering material (Column 4, Lines 13-21) in a substantially transparent polymeric material (Column 5, Lines 1-26) to produce a mixture, forming a film of the mixture, and disposing the film adjacent to at least one of the organic EL material (40) and the organic PL material (42). See Figs. 1-7.

With regard to Claim 41, Duggal et al. discloses the step of disposing at least one light-scattering material (Column 4, Lines 13-21) comprising dispersing particles of the light-scattering material (Column 4, Lines 13-21) in a substantially transparent polymeric material (Column 5, Lines 1-26) to produce a mixture, forming a film of the mixture, and disposing the film adjacent to at least one of the organic EL material (40), the organic PL material (42), and the inorganic PL material (Column 8, Lines 3-18). See Figs. 1-7.

With regard to Claim 42, Duggal et al. discloses the step of forming the light-emitting member (10) further comprises depositing at least one additional layer of an organic material (42) between one of the electrodes (50,30) and the organic EL material (40) for a function selected from the group consisting of hole injection enhancement, hole transport, and electron injection enhancement and transport. See Figs. 1-7 and Column 7, Lines 60-67.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tanaka (U.S. Patent No. 5,717,289), Onitsuka et al. (U.S. Patent No. 6,023,371) and Shi et al. (U.S. Patent No. 5,683,823) discloses light-emitting devices having light-emitting members, electrode (30), and organic and inorganic electroluminescent and photoluminescent materials.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edwin A. Leόn whose telephone number is (703) 308-6253. The examiner can normally be reached on Monday - Friday 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (703) 308-2319. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Edwin A. León

Edwin A. Leon
AU 2833
EAL
July 20, 2003

P. Bradley

P. AUSTIN BRADLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800